

Towards hepatocyte cell replacement therapy: developing a renewable source of human hepatocytes from pluripotent stem cells

Grant Award Details

Towards hepatocyte cell replacement therapy: developing a renewable source of human hepatocytes from pluripotent stem cells

Grant Type: Quest - Discovery Stage Research Projects

Grant Number: DISC2-10679

Investigator:

Name:	Irving Weissman
Institution:	Stanford University
Type:	PI

Disease Focus: Liver Disease

Award Value: \$2,201,136

Status: Pre-Active

Grant Application Details

Application Title: Towards hepatocyte cell replacement therapy: developing a renewable source of human hepatocytes from pluripotent stem cells

Public Abstract: **Research Objective**

To develop a consistent and abundant source of transplantable human hepatocytes for transplantation.

Impact

Developing an abundant and consistent source of human hepatocytes that can be used to treat patients with liver failure.

Major Proposed Activities

- To determine the degree by which human pluripotent stem cell (hPSC)-derived hepatocytes engraft and restore liver function in mouse models of liver injury
- To assess long-term safety of transplanted hepatocytes in vivo
- To track long-term localization and cell-growth of transplanted hPSC-derived hepatocytes after transplantation into injured mouse livers
- To profile cell-type specific surface markers expressed on hPSCs and hPSC-derived hepatocytes

Statement of Benefit to California: Liver failure is one of the 12 leading causes of adult death in the U.S. The only long-term treatment for liver failure is to transplant a new liver, but there is a grim shortage in available livers, with many patients dying while awaiting a suitable liver. Our research aims to generate large numbers of human liver cells derived from stem cells that could one day be used to treat patients with liver disease and end-stage liver failure.

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